Headquarters U.S. Air Force

Integrity - Service - Excellence

Airfield Pavement Evaluation
Many Players / Many Issues

Richard B. Smith

HQ AFCESA/CESC

U.S. AIR FORCE

U.S. AIR FORCE

Contingency Airfield Evaluation

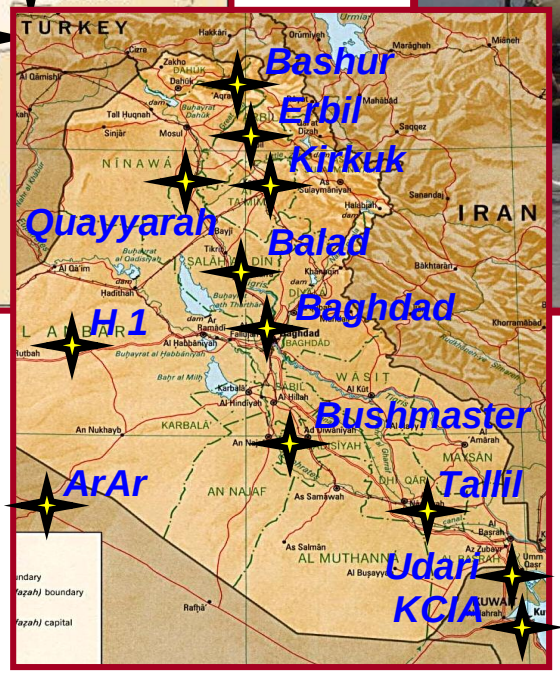
Overview

- *Many Players / Roles*
- *Current Shortfalls*
- *Evaluation Types,*
  Mission and Time Available
- *Evaluation Equipment*
- *Training / Certification*
- *Contacts*

U.S. AIR FORCE

Contingency Airfield Evaluation

Contingency AORs



AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Many airfield assessments required in support of OEF and OIF, 60 evals completed by AFCESA to date

U.S. AIR FORCE

Contingency Airfield Evaluation

Many Players

TALCE
AMOG
GAAT
CRG
RPF
STT
RED HORSE
AFCESA
ESSP
NGA
EBOG

U.S. AIR FORCE

Contingency Airfield Evaluation

Tanker Airlift Control Elements

- *Perform site surveys to determine suitability for aircraft operations. Units tasked to perform evaluations:*
  - *615 AMOG at Travis AFB*
  - *621 AMOG at McGuire AFB*
  - *715 AMOG at Hickam AFB*
  - *721 AMOG at Ramstein AB, Germany*
- *Tasked by HQ AMC-TACC/XOPM at Scott AFB, IL, DSN 779-3071.*
- *Airfield surveys (AMC Form 174) used to update Airfield Suitability and Restrictions Report (ASRR).*
  - *Includes Geometrics, Navaids, and Hazards to Flight Evaluations*
  - *Determines Aircraft Parking Areas,*
  - *Max on Ground (MOG) and Flow*

U.S. AIR FORCE

Contingency Airfield Evaluation
Global Airfield Assessment Team

- *Advance team for AMOG/TALCE*
- *Establishes Initial Airfield Operations, primarily tasked to open airfields*
- *Tasked by HQ AMC-TACC/XOPM at Scott AFB, IL, DSN 779-3071.*
- *Performs airfield survey to determine suitability for aircraft operations*
  - *Airfield surveys (AMC Form 174) used to update Airfield Suitability and Restrictions Report (ASRR).*
  - *Includes Geometrics, Navaids, and Hazards to Flight Evaluations*
  - *Determines Aircraft Parking Areas, Max on Ground (MOG) and Flow*

U.S. AIR FORCE

Contingency Airfield Evaluation

Contingency Response Groups

- *First-In Force to establish airfield operations*
  - *Includes Security, Initial Airlift Support, CE, Comm*
- *Short Term Footprint*
- *3 Teams*
  - *820 SFG at Moody AFB*
  - *613 CRG at Anderson AFB*
  - *86 CRG at Sembach AB*
- *Tasked by Unified or Combatant Command*
- *Airfield surveys (AMC Form 174) used to update Airfield Suitability and Restrictions Report (ASRR).*
  - *Includes Geometrics, Navaids, and Hazards to Flight*

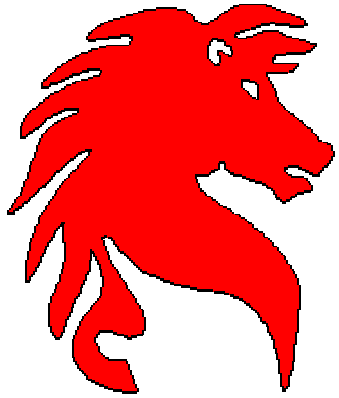
U.S. AIR FORCE

Contingency Airfield Evaluation

RED HORSE Units

- *RED HORSE Units*
  - *820 at Nellis AFB*
  - *823 at Hurlburt Fld*
  - *819 at Malmstrom AFB*
  - *200 at Port Clinton, OH*
    - *201 at Fort Indiantown Gap, PA*
  - *202 at Camp Blanding, FL*
    - *203 at Virginia Beach, VA*
  - *307 at Kelly AFB, TX*
    - *307 Det 1 at Barksdale AFB, LA*
  - *554 at Osan AB, ROK*

} *Units tasked to standup Airborne airfield pavement evaluation and repair capability*



- *Tasked by HQ ACC/CEX at Langley AFB, VA, DSN 574-7659.*
- *Will augment CRGs*

U.S. AIR FORCE

Contingency Airfield Evaluation

Special Tactics Teams

- *Perform surveys and certify semi-prepared airfields.*
  - *4 Teams in CONUS:*

    21 STS at Pope AFB *22 STS at McChord AFB*

    23 STS at Hurlburt Fld *24 STS at Ft Bragg*
  - *2 Teams Overseas:*

    320 STS at Kadena AB *321 STS at RAF Mildenhall*
  - *Rotate teams to other areas as required*
- *Tasked by 720 Special Tactics Group at Hurlburt Fld, FL, DSN 579-4250.*
- *LZ Surveys (AF Form 3822) used to update Assault Zone Availability Report (AZAR).*
- *Includes Geometrics, Navaids, Hazards to Flight and Semi-prepared Airfield Load Bearing Capability*

U.S. AIR FORCE

Contingency Airfield Evaluation

Expeditionary Site Survey Process

- *Air Force level initiative to standardize the process used to gather and store airfield information*
  - *Emphasis on deliberate (peacetime) evaluations in lieu of contingency or crisis action*
  - *Provide decision-makers with reliable and substantive information essential to mission planning*
- *Initial Site Survey Team (ISST)*
  - *14 to 16 person survey team*
  - *Performs airfield suitability, pavement evaluation, full spectrum threat assessment, and beddown survey*
  - *Data input requires LOGCAT/Georeach integration*
- *MAJCOM staff reviews data, DO approves or disapproves*
- *Information then stored in LOGCAT database*

U.S. AIR FORCE

Contingency Airfield Evaluation
Expeditionary Base Opening Group

- *Develop CRG Operational Concept to standardize CRG baseline capabilities … translated: standardize "Open the Airbase" capabilities*
  - *"AF's rapid entry force designed to secure and protect a fixed - wing capable airfield, open an airbase, and perform initial airfield operations"*
- *EBOG Assessment Team*
  - *No more than 10-person survey team*
  - *Assessment within 24 hours of arrival*
- *Provide Combatant Commander the ability to:*
  - *Conduct mobility/deployment planning*
  - *Rapidly open bases across spectrum of conflict*
  - *Conduct effective global air and space mobility*

U.S. AIR FORCE

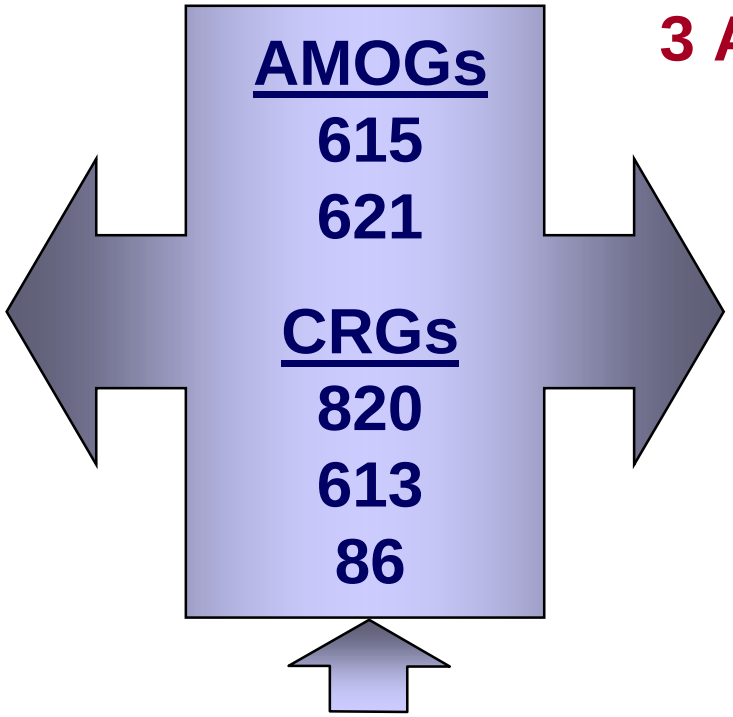
Contingency Airfield Evaluation
ESSP vs EBOG

Deployed

Number of teams not defined

ESSP
Deliberate Site Survey

In-Garrison Trained Forces



Deployed

7 Teams
3 Airborne/Airdrop Capable

EBOG
Open the Airbase

Others Augment … AFCESA, RED HORSE

U.S. AIR FORCE

Contingency Airfield Evaluation

National Geospatial-Intelligence Agency

formerly: National Imagery and Mapping Agency (NIMA)

- *Provides up-to-date imagery of airfields worldwide, other than those located in former Soviet block (Eastern Europe and USSR) and China*
- *Reports contain airfield geometrics, and information on support facilities, as well as pavement structural capability*

- *Caution: Less than 1% of structural data is taken from technical information. Most is estimated from imagery, estimated from similar airfields, or is as reported by the airfield managers. This data is often skewed for political or economic reasons.*

U.S. AIR FORCE

Contingency Airfield Evaluation
Current Situation

- *Many Players – Many Issues*
  - *No conformity to Contingency Evaluation ETL*
    - *Nonstandard Evaluation Techniques*
    - *Non-Certified Evaluators*
  - *Publishing PCNs without sufficient basis*
    - *Based on two to three DCPs*
    - *Not on all used airfield features*
  - *Multiple teams evaluating the same airfield*
    - *Differing Data between reports causing operational problems/shortfalls*

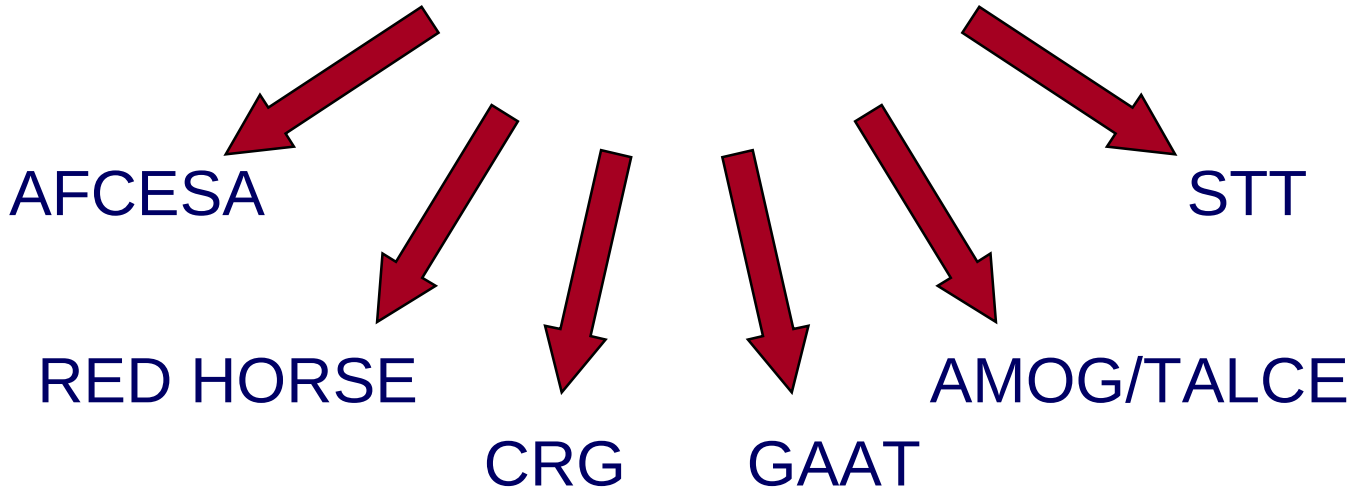
U.S. AIR FORCE

Contingency Airfield Evaluation

Who Should Evaluate

Evaluation Request

Who should perform the evaluation ?



U.S. AIR FORCE

Contingency Airfield Evaluation

Who Should Evaluate

Evaluation Request

Who should perform the evaluation?

- *Purpose of the Evaluation*
- *Team Locations/Mobilization*
- *Impact on Schedule*
- *Evaluation Priority*
- *Available Support*
- *Follow-on Taskings*
- *Team Equipment/Capabilities*
- *Team Confidence/Training*

Some objective, but others very subjective.

U.S. AIR FORCE

Contingency Airfield Evaluation

Evaluation Types

Purpose of Evaluation

(Nature of Problem or Required Info)

- *Expedient (100 passes or initial surge of mission aircraft)*
- *Sustainment (5,000 passes or throughout anticipated operation)*
- *Permanent (≥ 50,000 passes or long term operations)*

- *All require same basic procedures, but differ in amount of data used in the evaluation and in turn the reliability of the results, as well as the detail in the report.*

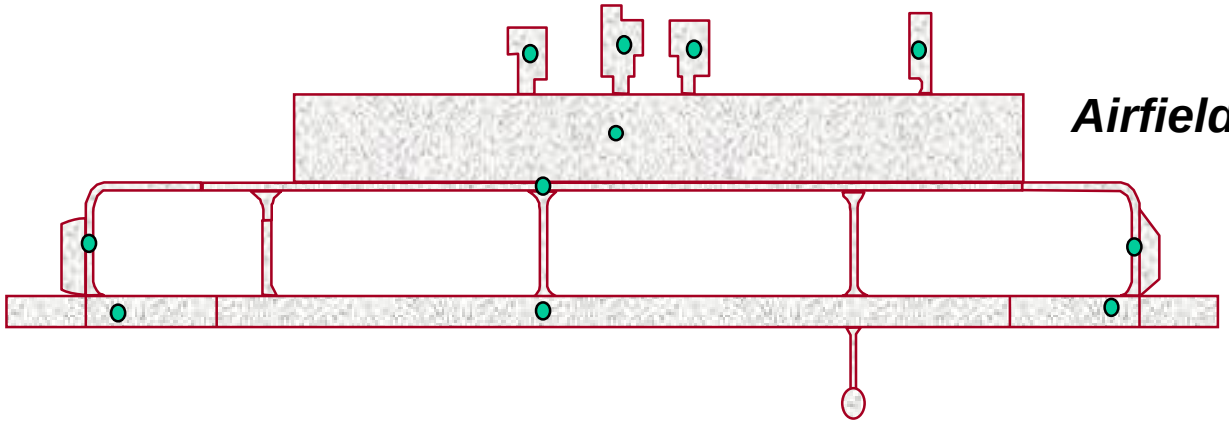
- *Classification of evaluation is driven by the mission and time allotted for field work and analysis.*

- *AFCESA responsible for Sustainment and Permanent evaluations, others will be primarily concerned with Expedient evaluations. All must understand evaluation standards and procedures.*

U.S. AIR FORCE

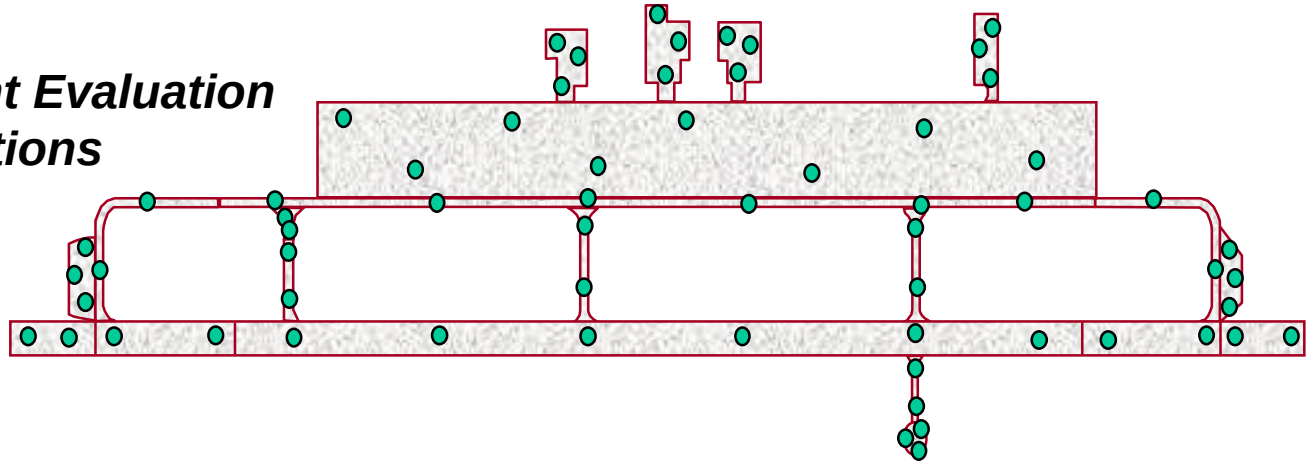
Contingency Airfield Evaluation

Evaluation CONOPS



Airfield Expedient Evaluation Test Locations

Airfield Permanent Evaluation Test Locations



U.S. AIR FORCE

Airfield Pavement Evaluation
Evaluation Equipment

Airfield Cone Penetrometer

- *Determines Subsurface Layer Thicknesses and Strengths*
- *Used to Evaluate Semi-Prepared (Unsurfaced) Airfields*
- *Typically Penetrate 24” Deep*
- *Some Limitations, Depending upon Density or Grain Size of Materials, Effective for Fine-grained Soils (1 to 18 CBR)*

Used by Special Tactics Teams in covert operations

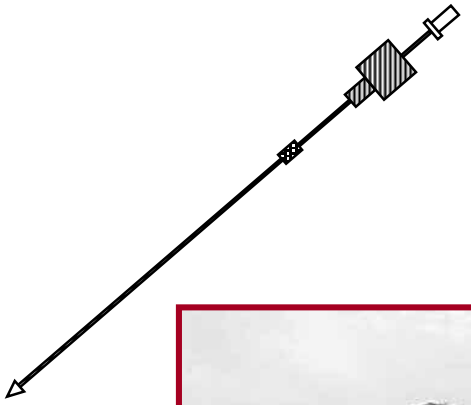
U.S. AIR FORCE

Airfield Pavement Evaluation
Evaluation Equipment

Dynamic Cone Penetrometer

- *Determines Subsurface Layer Thicknesses and Strengths*
- *Powerful, Relatively Compact, Produces Consistent Results*
- *Access Soils Through Core Holes, Penetrate 50” Deep*
- *Some Limitations, Depending upon Density or Grain Size of Materials*

Used by most teams for expedient evaluations



U.S. AIR FORCE

Airfield Pavement Evaluation

AFCESA Evaluation Equipment

Heavy Weight Deflectometer

- *Approx.. 1,000 Locations per Base*
- *Minimal Disruption to Flying Ops*
- *Test Each Feature*
- *Limitation, Must Know Pavement Layers*

U.S. AIR FORCE

Airfield Pavement Evaluation
AFCESA Evaluation Equipment

Electronic Cone Penetrometer

- *Contingency Oriented, Air Transportable (C-130, C-141, C-5, C-17)*
- *ECP Correlations Classify Layer Soil Types, Thicknesses, and Strengths*
- *Typically Penetrate*

  5 - 7 Feet Deep

Must compete for airlift
(16 ton package)

U.S. AIR FORCE

Contingency Airfield Evaluation

AFCESA Evaluation Equipment

Contingency
Pavement Test Vehicle
(F350/F550 Vehicle)

- Core Drill
- Automated Dynamic Cone Penetrometer
- Air Transportable (C-130, C-17, C-141, C-5)

Automated Dynamic Cone Penetrometer (ADCP)

U.S. AIR FORCE

Contingency Airfield Evaluation
Evaluation CONOPS

- *Initial Beddown (Expedient) Airfield Evaluation*
  - *Performed by STT/GAAT/CRG/RED HORSE/AFCESA as mission statements and circumstances dictate*
  - *Evaluation limited to initial surge of aircraft*
    - *Give initial "Thumbs-Up/Thumbs-Down" for short term operations*
    - *Use Hilti drill/handheld evaluation techniques to evaluate*
  - *Publish Expedient Evaluation Report as outlined in ETL 02-19*
    - *Provide Reports to AFCESA for review*
- *Sustainment and/or Permanent Evaluations*
  - *Performed by AFCESA APE to publish full Airfield Pavement Evaluation Report*
  - *Using standard coring, DCP/ADCP/ECP and conventional evaluation techniques or HWD and layered elastic evaluation techniques*

U.S. AIR FORCE

Contingency Airfield Evaluation

Evaluation Standards

AFCESA Goal: ***to standardize criteria and procedures used to perform evaluations and to ensure evaluation results are consistent***

ETL 02-19, Airfield Pavement Evaluation Standards and Procedures, published. Provides:

- ***Standards for Field Testing and Data Analysis***

AFCESA personnel can provide:

- ***Training***
- ***Laboratory support if required***
- ***Report review***

U.S. AIR FORCE

Contingency Airfield Evaluation
Training – The Way Ahead

- *Those tasked to perform evaluations must be trained and certified to ensure proper procedures are used*
  - *Initial training by AFCESA (classes scheduled once each quarter)*
  - *Individual completes home station/follow-on training as determined by MAJCOM pavement engineer*
  - *Once the MAJCOM pavement engineer is satisfied that the individual is capable of conducting independent evaluations, he will notify AFCESA*
  - *If MAJCOM pavement engineer has no training program, the individual should accompany AFCESA team on evaluations. AFCESA team chief will certify*
  - *AFCESA will maintain a list of those trained and certified*
  - *AFCESA training should be recurring (annual). Certification good for a maximum of 2 years*

U.S. AIR FORCE

Contingency Airfield Evaluation
Initial Classroom Training

- *Projected Training Schedule for 2004*
  23 - 27 Feb, 10 – 14 May, 9 – 13 Aug, 15 – 19 Nov
  - *Would like 10 students per class*
  - *How to fill slots ? (Next Slide)*

- *Will conduct other classes as required*
  - *Have received training requests from 613 MRS and USAFE*
  - *Will go there*
    - *USAFE: 17-21 May 04*
    - *613 MRS: Tentative June 04*

- *Received training request from 819 RHS and 554 RHS*
  - *We will support*
  - *Should send folks to our scheduled classes*

U.S. AIR FORCE

Contingency Airfield Evaluation
Who Should Attend Training

Everybody is adding pavement evaluation to their mission statements

- *Train those actually tasked first*
  - *Expeditionary Base Opening Group (EBOG) teams*
    - *1 team from each CRG*
      - *820 SFG, 613 CRG, 86 CRG*
    - *2 teams from each AMC AMOG*
      - *615 AMOG, 621 AMOG*
- *Those that might augment these teams*
  - *RED HORSE, Other MAJCOM assets*
- *Those in planning cells or positions to analyze reports and project requirements*

U.S. AIR FORCE

Contingency Airfield Evaluation Training – The Way Ahead

- *40 personnel have attended training at AFCESA since Apr 2003, when testing was incorporated*
- *29 have received passing scores*
- *11 did not receive passing scores*
  - *Most had little background in field*
- *What of those who did not receive passing scores*
  - *Training was still worthwhile, they have a familiarity with evaluation procedures*
  - *Would not recommend they be sent alone to do an evaluation, but they can assist others*
  - *Most work in positions where they will not be tasked to do stand-alone evaluations*

U.S. AIR FORCE

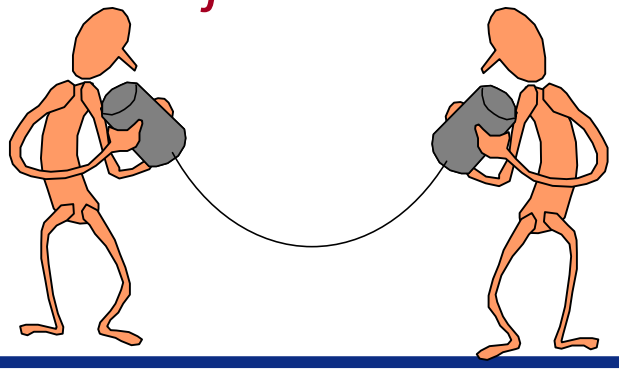
Contingency Airfield Evaluation

Communication is the Key

- *Have good relationship with active duty units*
  (Shared information and joint efforts).

- *Have provided training to RED HORSE, STT, and others.*

- *If you encounter different circumstances in the field or have questions, call AFCESA.*
  (In some cases, pride has hampered communication. In others, the folks just didn't know who to call.)



U.S. AIR FORCE

Contingency Airfield Evaluation

Pavement Contacts

- *MAJCOM Pavement Engineers:*
  - *ACC, Mr Cliff Sander, DSN 574-3668*
  - *AMC, Mr Dave Ferry, DSN 779-0976*
  - *AFSOC, Mr George Omley, DSN 579-2875*
  - *PACAF, Mr Ross Higa, DSN 449-9024*
  - *USAFE, Mr Reed Olsen, DSN 480-6207*
- *AFCESA contacts for questions concerning ETL 02-19, pavement evaluation procedures, or training:*
  - *Mr Jim Greene, DSN 523-6334*
  - *Mr Dick Smith, DSN 523-6084*

U.S. AIR FORCE

Contingency Airfield Evaluation

Integrity - Service - Excellence